



Office of Engineering
PO Box 94245 | Baton Rouge, LA 70804-9245
ph: 225-379-1234 | fx: 225-379-1861

John Bel Edwards, Governor
Shawn D. Wilson, Ph.D., Secretary
Christopher P. Knotts, P.E., Chief Engineer

April 8, 2019

Mr. Charles W. Bolinger
Division Administrator
Federal Highway Administration
5304 Flanders Drive, Suite A Baton Rouge, LA 70808

SUBJECT: Sole Source Certification Letter for Research and Experimentation on a Limited Number of Louisiana Roadway Lighting Projects

Dear Mr. Bolinger:

In recent years, the technology in the roadway lighting industry has evolved quickly with the invention of “Smart” control and monitoring systems. These systems are purported to reduce operation and maintenance costs, and improve functionality by allowing the roadway lighting system to communicate through the internet to a remote (centralized) database. Maintenance items, such as burned out lights or downed poles, are instantly reported to the database and made available to the owner’s maintenance personnel. This may result in quicker maintenance response times, reduced maintenance man-hours, and a reduced need to survey sites manually. Also, adjustments to the lighting control system can be made remotely, which could potentially save additional maintenance man-hours, and reduce utility costs due to better light management.

Before the Department starts generically specifying these systems in open bid projects, I believe it would be prudent to let a small number of experimental projects that would allow us to compare competing products, evaluate their functionality and effectiveness, and receive input from up to four different owners. Our in-house investigation has determined that the systems developed by “Eaton” and “Telensa” may provide the desired quality and functionality. It is, therefore, the Department’s intent to sole source each of these systems on no more than two roadway lighting projects (no more than four total projects) in the next three years. Both Eaton and Telensa have agreed to provide training and product support during the experimentation period. Cost estimates for the first two projects show that the control and monitoring systems will add between three and five percent to the initial cost of the lighting system. It is our expectation that the operation and maintenance cost savings over the 25 year life of the lighting system will significantly exceed this initial expense.

Information on both the “Eaton” and the “Telensa” communication systems can be found attached to this letter.

In accordance with 23 CFR 635.411(a), the Department is authorized to certify this decision with the following statement:

Mr. Charles W. Bolinger

April 8, 2019

Page | 2

I, Christopher P. Knotts, Chief Engineer of the Louisiana Department of Transportation and Development, do hereby certify in accordance with the requirements of 23 CFR 635.411(a)(3), that the roadway lighting control and monitoring systems developed by "Eaton" and "Telensa", and marketed under the names "Eaton ConnectWorks" and "Telensa Lighting Monitoring System" will each be sole source specified for use on no more than two Louisiana roadway lighting projects (no more than four total projects) within the next three years for the purpose of comparing and evaluating the effectiveness of this new roadway lighting communication technology.

This certification will be posted on the Department's website.

If you have any questions regarding this matter, please contact Stewart Hingle at (225) 379-1316.

Sincerely,

A handwritten signature in blue ink, appearing to read "Christopher P. Knotts".

Christopher P. Knotts, P.E.
Chief Engineer

CPK:SPH:sph

Attachments

c: Scott Nelson, FHWA



MAKE WIRELESS CONTROLS PART OF YOUR STREET AND AREA LIGHTING SOLUTION

Agenda

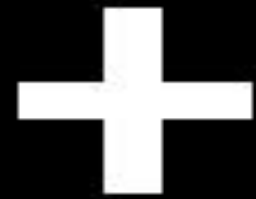
- **Intelligent Lighting System Components**
- **Street Lighting as a Sensor Platform**
- **Future Proofing Your Lighting Infrastructure**
- **Basic Hardware and ConnectAhead Pilot Program**

Intelligent Lighting System Components

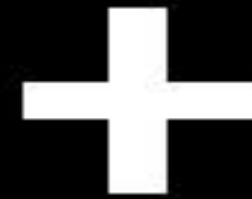
Eaton ConnectWorks Powered By CimCon



**Lighting
Fixture**
Highly efficient
LED fixtures



**Wireless
Lighting Controller**
Intelligent, wireless
lighting controller



**Wireless
Gateway**
Communicates with
cloud-based system



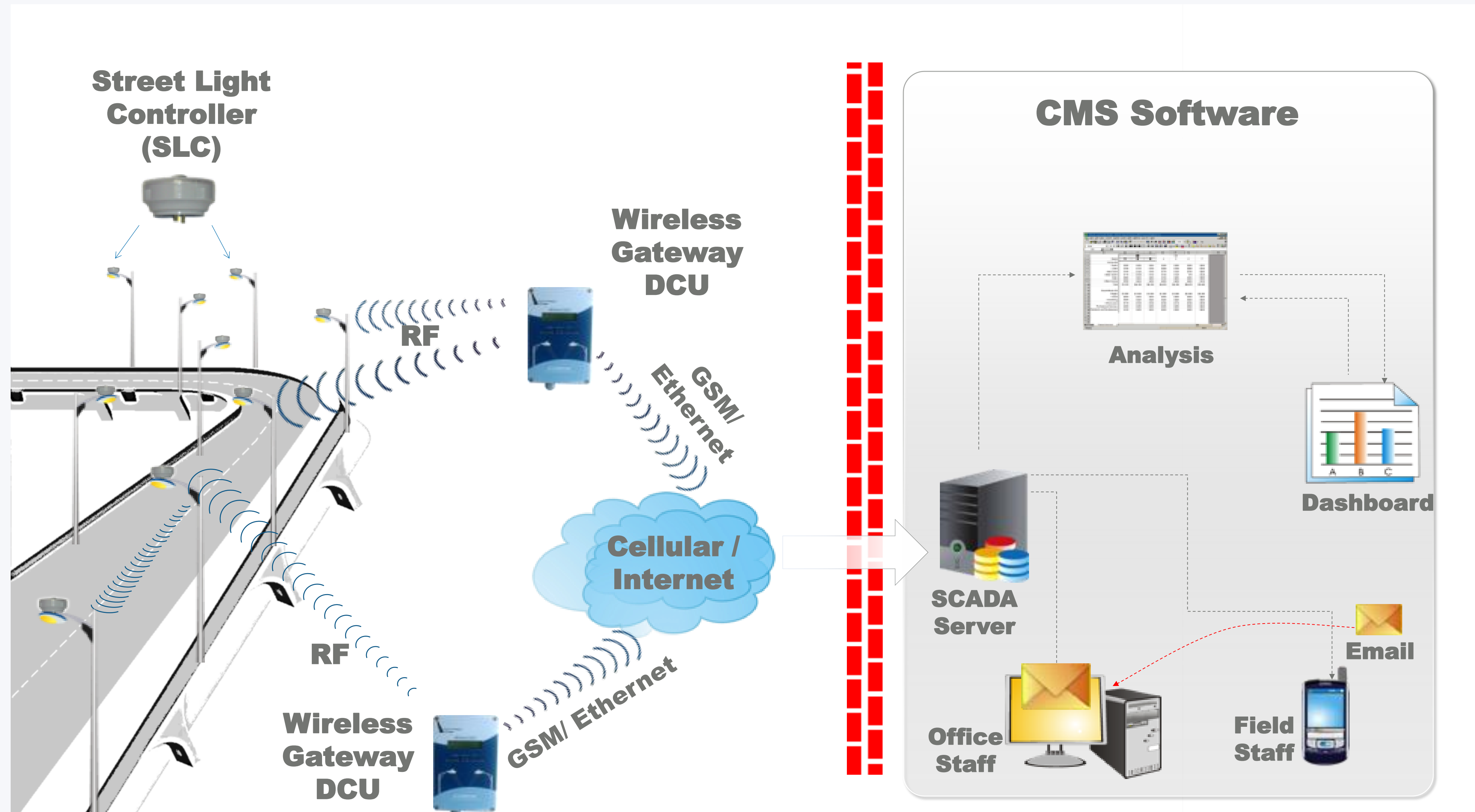
**Software
Services**
Full status and control
from Google Maps

Technology - Scalable - Robust - Low Cost

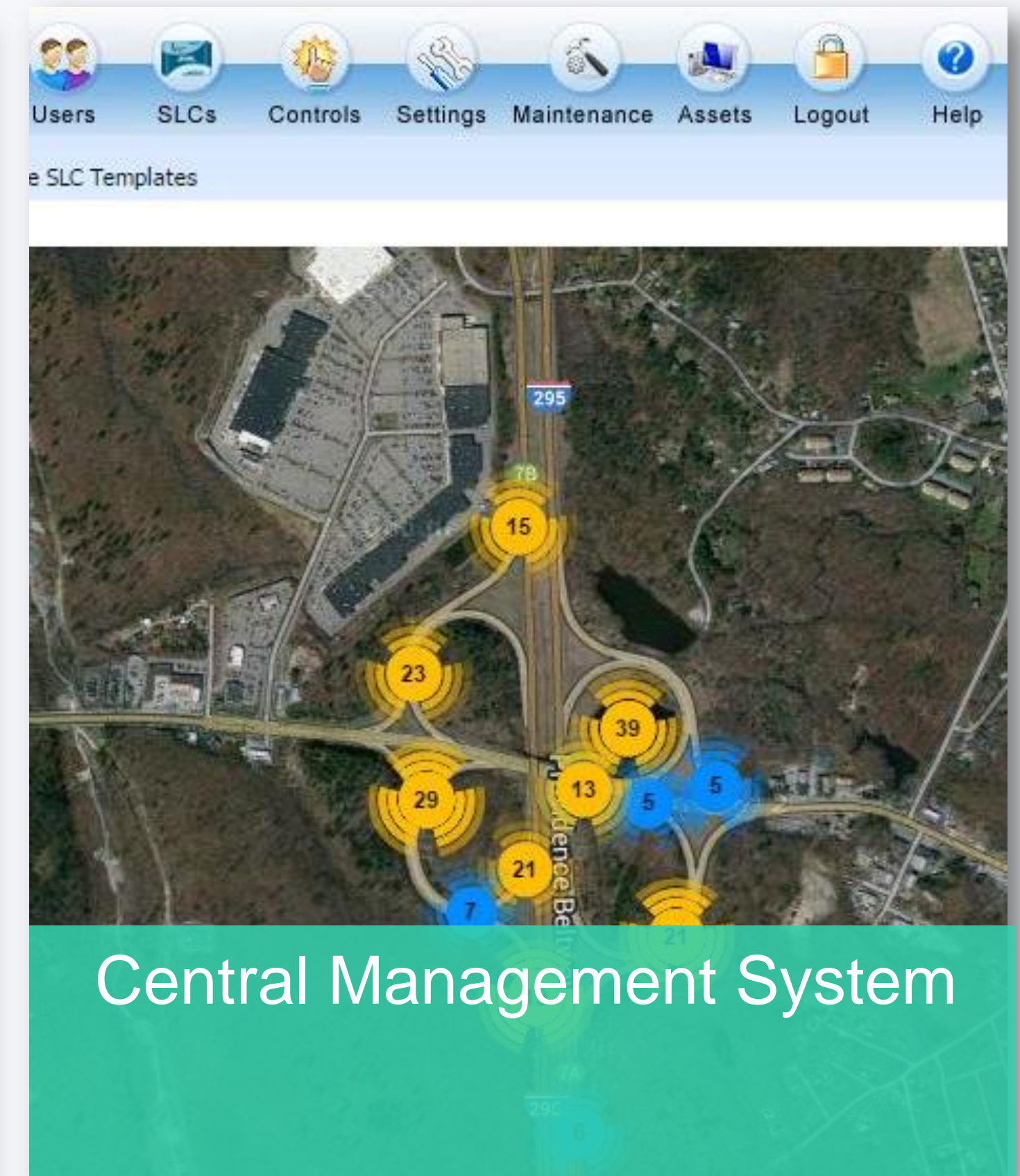
Eaton's ConnectWorks tackles today's challenges head-on. An intelligent, centralized wireless outdoor lighting management solution, ConnectWorks is designed to give owners the advantages of full system control.



CONNECTWORKS Mesh Solution Architecture



WIRELESS TECHNOLOGY COMPONENTS



ANSI C136.41 Receptacle and NLC-Network Lighting Control “iSLC-Node”



ANSI 7-Pin wireless control nodes (plug & play)

9

Node 2.4GHz Zigbee wireless radio

Optional GPS capability

Power metering @ 2.0% standard, 0.5% optional

Tilt option detects falls and knockdowns

Includes a built in real time clock

Full support for added sensor inputs

Includes a built in photocell (480V unit astronomical clock)

Dimming interface (0-10V, PWM, DALI)

Microprocessor with non-volatile memory

Line-of-sight up to one mile, 500-1000 nodes per gateway

Silver Spring network radio compatible node available



TODAY – INTELLIGENT CONTROLLER + NETWORK

GPS GPS capabilities reduce install errors, provide accurate location data and speed the deployment process.



Power metering Highly accurate reports of energy usage are easily generated and groups of “virtual meters” can be easily created.



Adaptive Dimming Individual lights or groups of lights can be dimmed based on a programmable schedule or by events (such as motion sensors, noise sensors, traffic monitors, etc.).



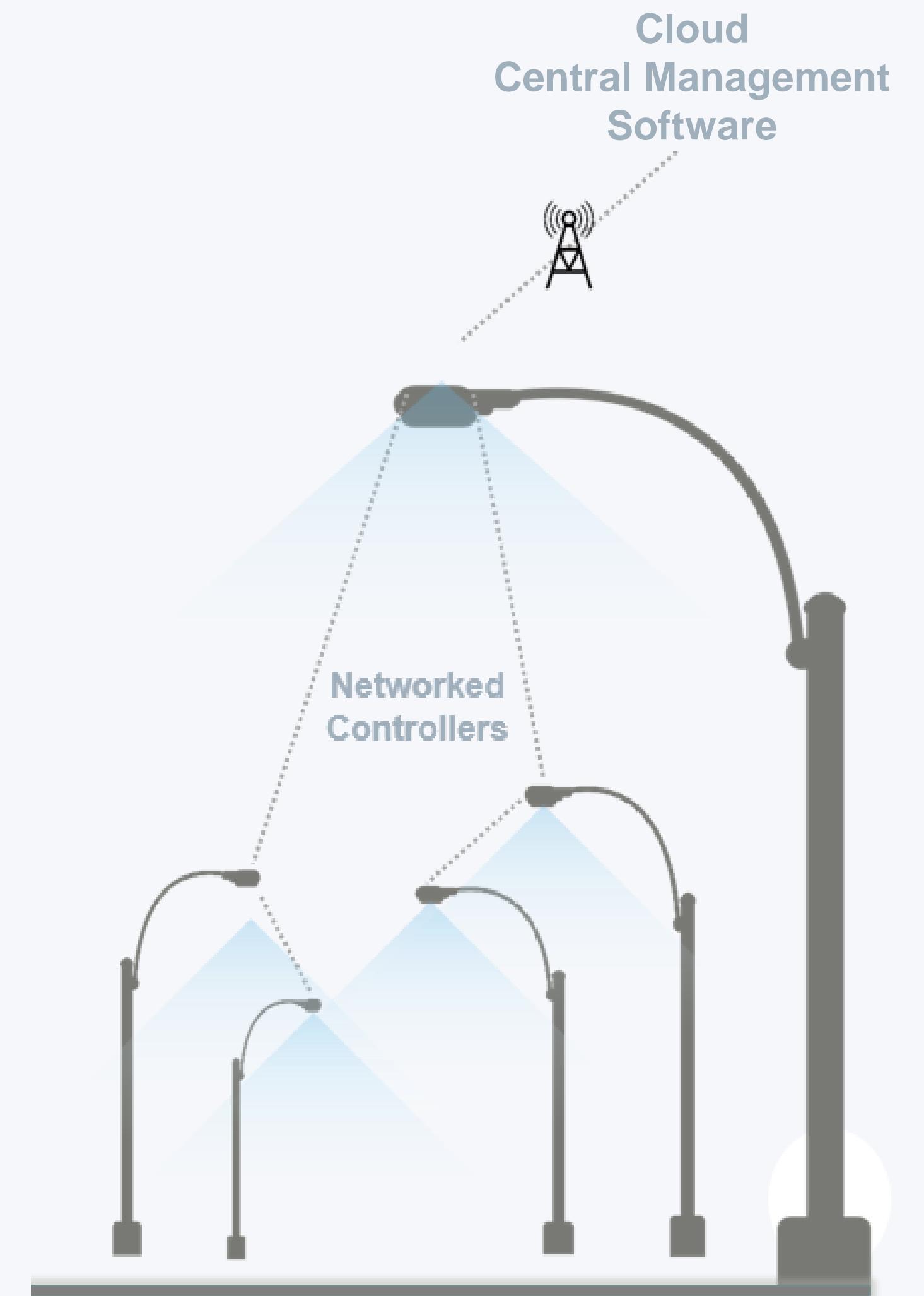
Self-organizing network Controllers form a fault-tolerant mesh network without any operator intervention.



Sensor integration Digital and analog inputs enable the controller to interface with external sensors.



Photocell Enables the street lights to be operational the moment they are powered on. Provides redundant backup in the event of daylight weather changes.



GATEWAY

Ethernet, Cellular or WiFi connection to the Cloud.

Fault tolerant

Multiple connections to the cloud provide fail-over capabilities.

Easy to install

Average installation time of approximately 15 minutes.

Communicates to 1-1,000 node controllers

Communication Distance 5,000' between Gateway and Node.

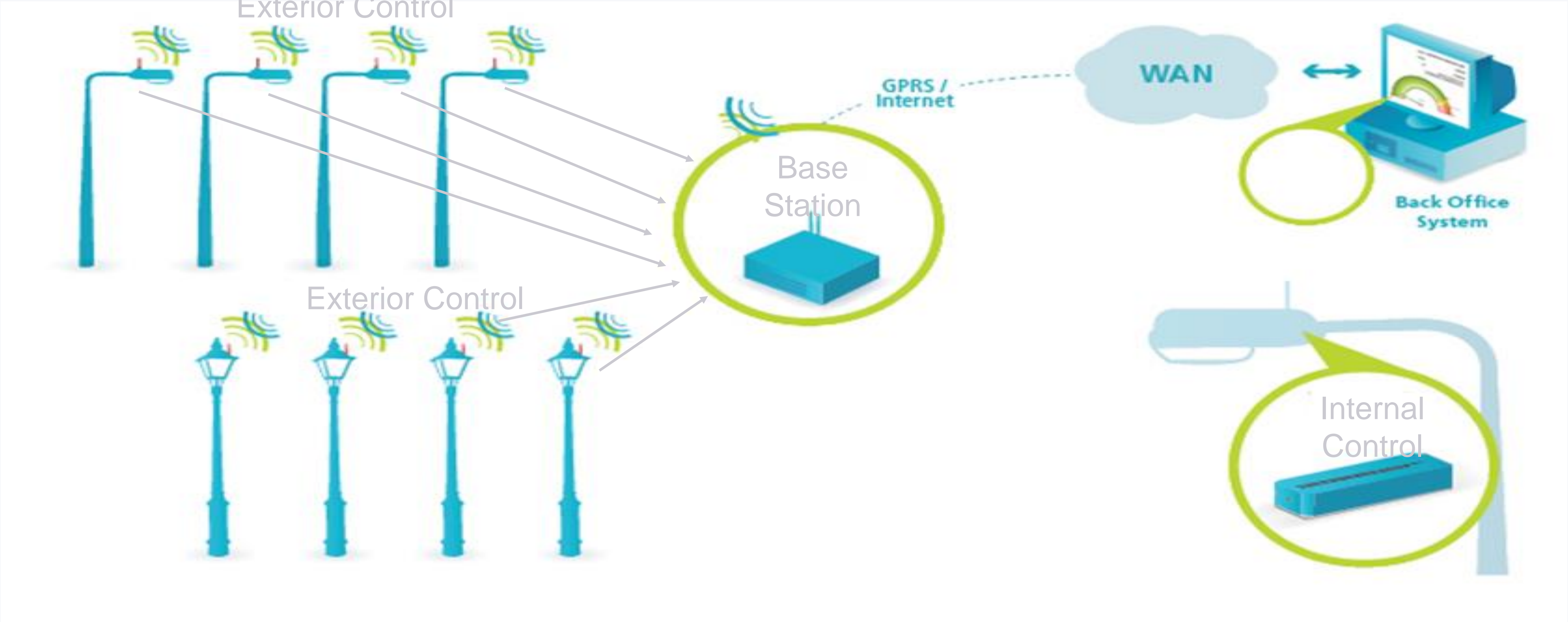
Mesh Network: Node can talk to Node or Node to Gateway

Install options

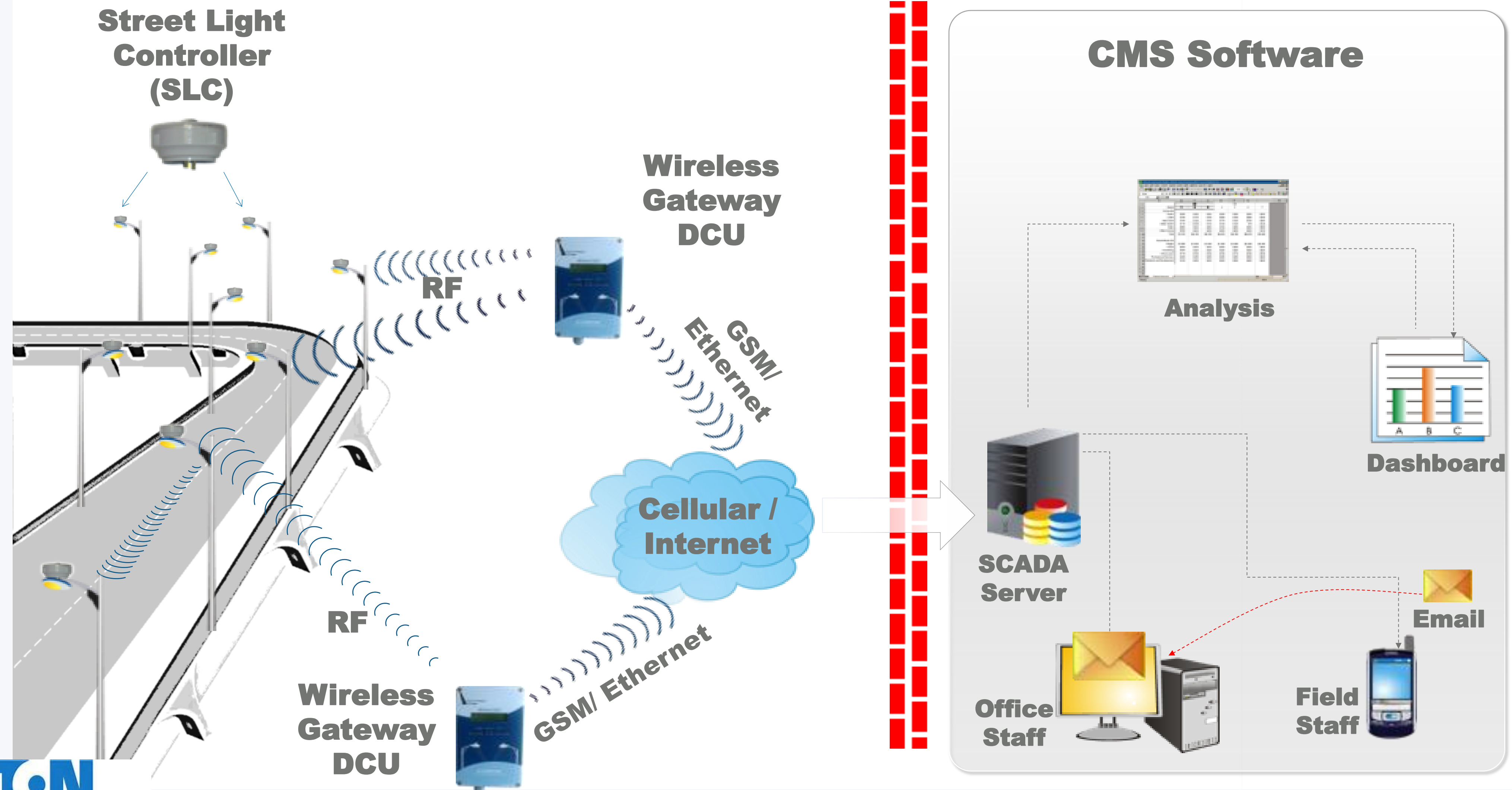
Pole or wall-mounted.



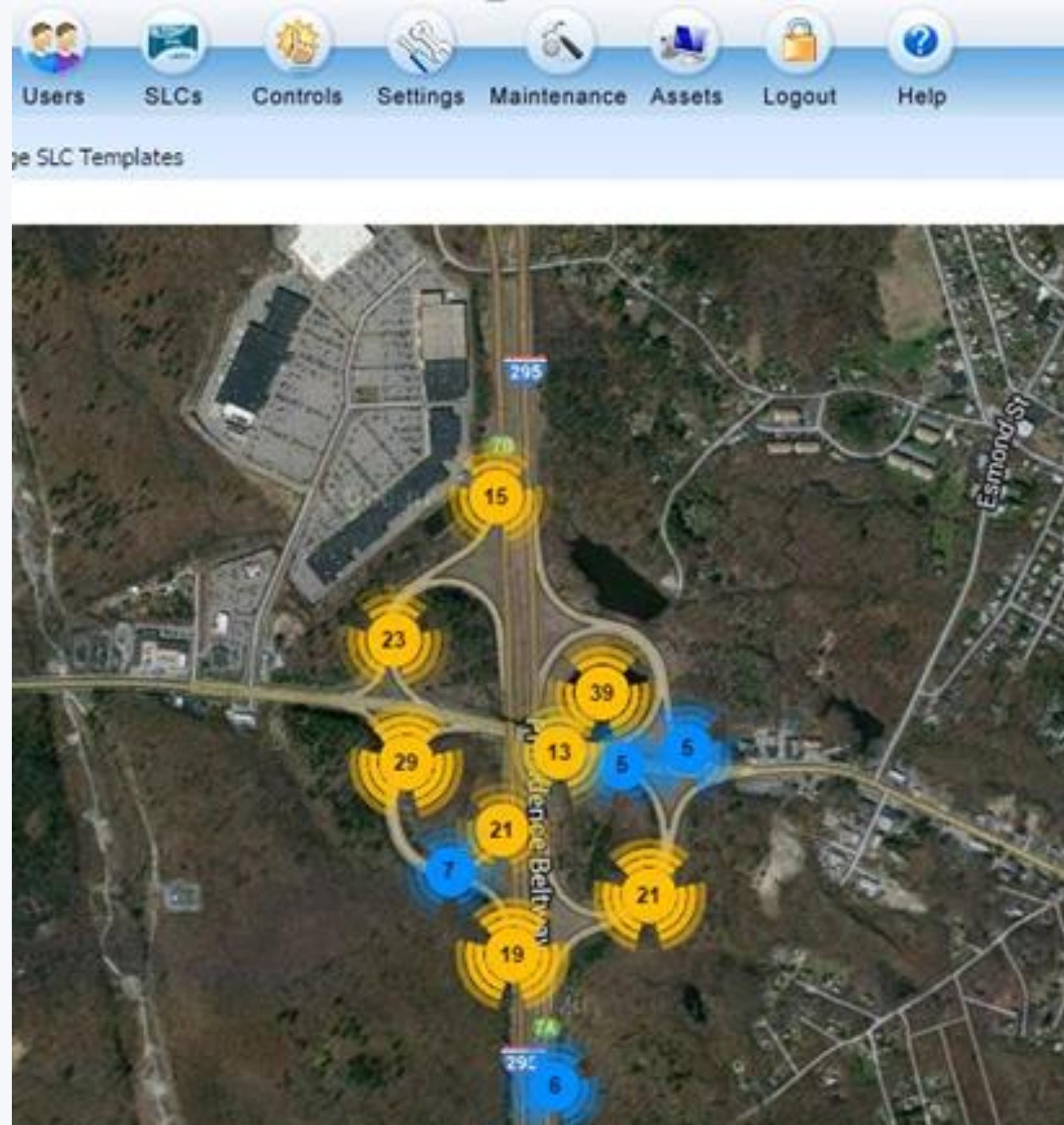
Star Network Solution Architecture



CONNECTWORKS Solution Architecture



Web-based, easy-to-use Central Management System.



Google Maps Interface

Intuitive Google Maps interface for on/off/dimming, grouping and reporting.

Reports & Dashboards

Customizable reports and dashboards can be setup to run autonomously,

Adaptive Dimming Controls

Extensive scheduling capabilities enable complex adaptive dimming strategies to drive additional energy savings,

API Integration

A full suite of APIs enable integration with third-party applications,

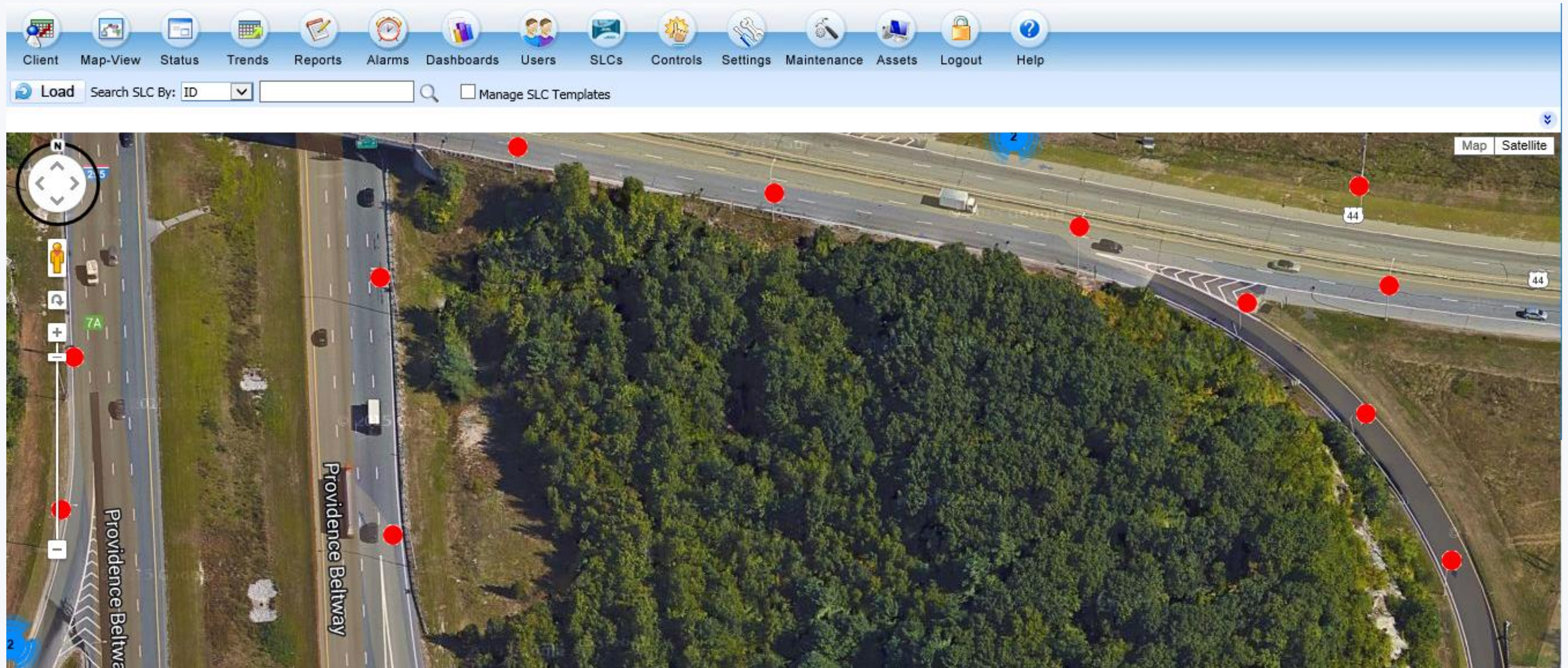
eMail and Text Alerts

Alerts can be routed to the appropriate persons via email and texts.

Asset Management

A complete, customizable asset management module keeps track of all fixture and pole attributes and assets.

Easy-to-use Google Maps interface.



Easy-to-use Google Maps interface.

The screenshot displays the CMS interface with a Google Maps view. The top navigation bar includes icons for Client, Map-View, Status, Trends, Reports, Alarms, Dashboards, Users, SLCs, Controls, Settings, Maintenance, Assets, Logout, and Help. Below the navigation bar is a search bar with the text "Search SLC By: ID" and a "Load" button. A "Manage SLC Templates" checkbox is also present. The main map area shows an aerial view of a road labeled "Providence Beltway" with several red markers indicating SLC locations. A popup window is open, displaying the status and details for SLC 13614.

Status	
SLC No.	13614
Name	13614
DATETIME	09/29/2015 06:43:43 AM
LAMP_STATUS	OFF
LAMP	NORMAL
LAMP_CYCLIC	NORMAL
COMMUNICATION	OK
BALLAST	NORMAL
VOLTAGE	248.65
CURRENT	0
KILOWATT	0
CUM_KWH	560.54
BURN_HRS	3072.11
DIMMING	100
POWER_FACTOR	1
MODE	PHOTOCELL

Switch ON | Switch OFF | Dim

LightingGale CMS: Primary Dashboard

17

LightingGale :: Just in Time Lighting - Windows Internet Explorer

http://demo23/LGDemo/Statusdata.aspx

LightingGale :: Just in Time Li...

CIMCON Software, Inc.

Company Name Terassa Kelly Gateway Faulty Command Acknowledgement Received.

Home > Status

Map-View Status Trends Reports Alarms Dashboards Users SLCs Controls Settings Maintenance Assets Logout Help

Amp -> Current, BHours -> Burn Hours, BHrs -> Burn Hrs, BurnHrs -> Burn Hours, Cum_Kwh -> Cum_Kwh, Cur -> Current, Dim -> Dimming, Dim -> DimPercentage, DP -> DimPercentage, KW -> KiloWatt, KWh -> Cum_KWh, KWHr -> Cum_Wh, LSC -> Lamp Steady Current, Mode -> Mode, PF -> Power Factor, TEMP -> Junction Temperature, Volt -> Voltage, Watts -> Wattage, ALC -> Abnormal Lamp Condit, B -> Ballast, Ballast -> Ballast Faulty, C -> Communication, Day Burning -> Day Burning, DRIVER -> LED Driver, FAULT -> Fault Condition, LAMP -> Lamp Status, LC -> Lamp, LCyc -> Lamp Condition, LCyc -> Lamp Cyclic, LF -> Lamp Fault, LS -> Lamp Status, PF -> Photocell Feedback, Photo -> Photocell Status, PHOTOCCELL -> Photocell Status, PO -> PhotoCell Osc, RF NET -> Communication, VUC -> Voltage Under Cover, VUO -> Voltage Under Over

Export To Excel Print

Gateway: St Croix-Christiansted Harbor (15)

Lamp Type: LED (15)

	SLC No.	SLC Name	Date - Time	Address	Lamp	Fault	RF NET	Ballast	Volt	Amp	Watts	KWHr	BurnHrs	Dim	Mode
✓	1	STX-CH-2-001	08/12/2011 12:45:10	Northside Rd, Christiansted, US Virgin Islands	●	●	●	●	100	5	0.5	535	1070	100	Civil Twilight
✓	2	STX-CH-2-002	08/12/2011 12:35:49	Northside Rd, Christiansted, US Virgin Islands	●	●	●	●	109	4	0.436	470.8	1070	100	Manual
✓	3	STX-CH-2-003	08/12/2011 12:35:49	Northside Rd, Christiansted 00820, US Virgin Islands	●	●	●	●	114	3	0.342	306	900	100	Manual
✓	4	STX-CH-2-004	08/12/2011 12:35:49	West St, Christiansted 00820, US Virgin Islands	●	●	●	●	105	2	0.21	170.9925	814.25	100	Manual
✗	5	STX-CH-2-005	08/12/2011 12:35:49	West St, Christiansted 00820, US Virgin Islands	●	●	●	●	0	0	0	0	0	0	Manual
✗	6	STX-CH-2-006	04/24/2013 07:01:22	Northside Rd, Christiansted 00820, US Virgin Islands	●	●	●	●	0	0	0	0	0	0	Manual
✓	7	STX-CH-2-007	08/12/2011 12:35:49	Northside Rd, Christiansted 00820, US Virgin Islands	●	●	●	●	114	5	0.57	535.8285	940.05	100	Photocell
✓	8	STX-CH-2-008	08/12/2011 12:35:49	Northside Rd, Christiansted 00820, US Virgin Islands	●	●	●	●	114	5	0.57	537.5955	943.15	100	Scheduled
✓	9	STX-CH-2-009	08/12/2011 12:35:49	West St, Christiansted 00820, US Virgin Islands	●	●	●	●	117	4	0.468	382.6599	814.17	100	Scheduled
✓	10	STX-CH-2-010	08/12/2011 12:35:49	Northside Rd, Christiansted 00820, US Virgin Islands	●	●	●	●	118	5	0.59	634.4152	1075.28	100	Scheduled
✓	11	STX-CH-2-011	08/12/2011 12:35:49	West St, Christiansted 00820, US Virgin Islands	●	●	●	●	112	4	0.448	455.94	1013.2	100	Astro Clock
✗	12	STX-CH-2-012	08/12/2011 12:35:49	Northside Rd, Christiansted 00820, US Virgin Islands	●	●	●	●	116	4	0.464	414.2668	900.58	100	Astro Clock
✓	13	STX-CH-2-013	08/12/2011 12:35:49	Northside Rd, Christiansted 00820, US Virgin Islands	●	●	●	●	120	4	0.48	403.296	840.2	100	Astro Clock
✗	14	STX-CH-2-014	08/12/2011 12:35:49	Northside Rd, Christiansted 00820, US Virgin Islands	●	●	●	●	114	4	0.456	465.9938	1013.03	100	Manual
✓	15	STX-CH-2-015	08/12/2011 12:35:49	Northside Rd, Christiansted 00820, US Virgin Islands	●	●	●	●	114	4	0.456	465.8512	1012.72	100	Manual

18)

Client
Map-View
Status
Trends
Reports
Alarms
Dashboards
Users
SLCs
Controls
Settings
Maintenance
Assets
Logout
Help

Select / Define Template:

Template:

Dimming Sch

Save
 Delete

Template Name: *

Dimming Sch

No. of Schedules: *

1

Add

Command Name: *

1/24 6:2 MixedSchedule_[GATEWAY_P/F]

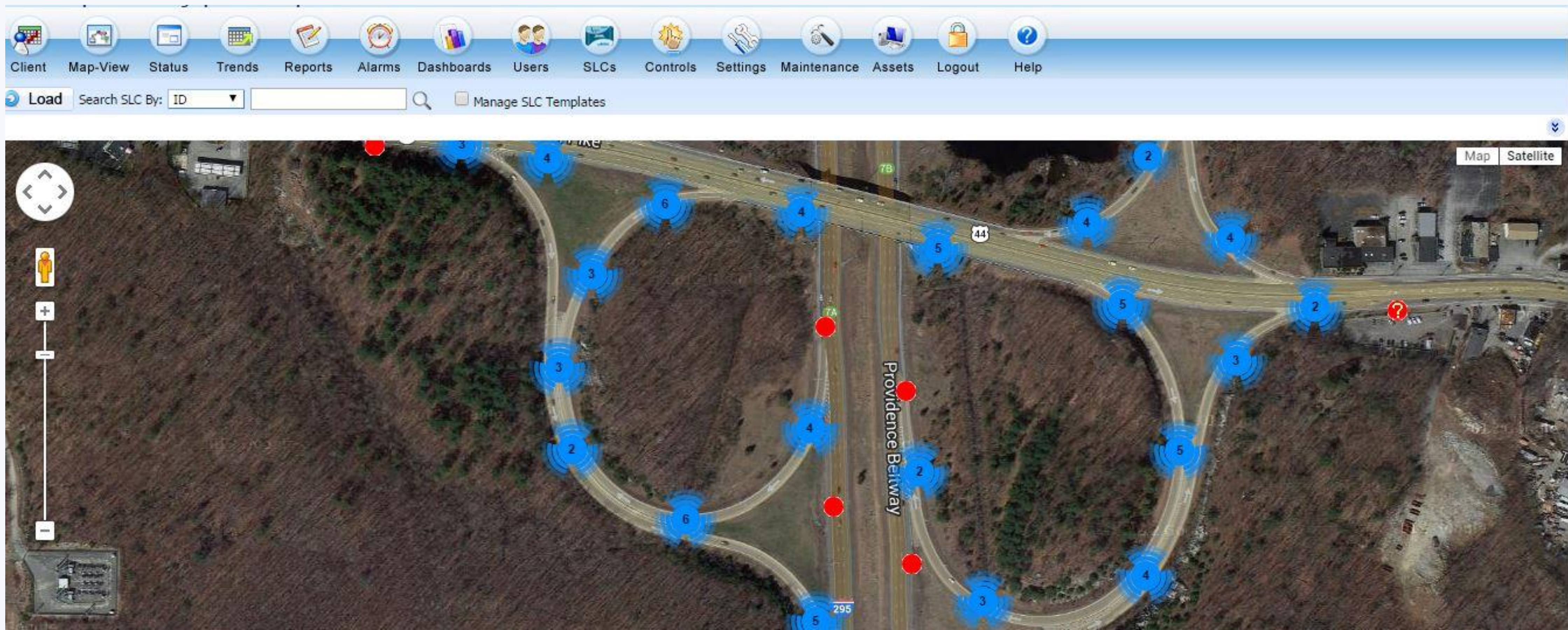
Normal Schedule

Special Day Schedule

No.	Details	Schedules																																										
1	<input type="checkbox"/> Send to Device <input type="checkbox"/> Enabled <div> Start Day <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 30px; text-align: center;">1</div> Start Month <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 30px; text-align: center;">Jan</div> </div> <div style="margin-top: 5px;"> Stop Day <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 30px; text-align: center;">31</div> Stop Month <div style="border: 1px solid #ccc; padding: 2px; display: inline-block; width: 30px; text-align: center;">Dec</div> </div> <div style="margin-top: 5px;"> <input type="checkbox"/> Photocell Override <input type="checkbox"/> All Days <input checked="" type="checkbox"/> Mon <input checked="" type="checkbox"/> Tue <input checked="" type="checkbox"/> Wed <input checked="" type="checkbox"/> Thu <input checked="" type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun </div> <div style="margin-top: 10px;"> Preview </div>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #e0f0ff;"> <th>Enabled</th> <th>Start Time (HH:MM)</th> <th>Sunset Delay (Minutes)</th> <th>End Time (HH:MM)</th> <th>Sunrise Delay (Minutes)</th> <th>Dimming (%)</th> <th>Dimming Override</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Sunset </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td>9:30 pm </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td style="text-align: center;"> <input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div> </td> <td style="text-align: center;"> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div> </td> </tr> <tr style="background-color: #f0f0f0;"> <td style="text-align: center;"><input type="checkbox"/></td> <td>9:30 pm </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td>Sunrise </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td style="text-align: center;"> <input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div> </td> <td style="text-align: center;"> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div> </td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>12:00 pm </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td>12:00 pm </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td style="text-align: center;"> <input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div> </td> <td style="text-align: center;"> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div> </td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>12:00 pm </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td>12:00 pm </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td style="text-align: center;"> <input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div> </td> <td style="text-align: center;"> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div> </td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>12:00 pm </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td>12:00 pm </td> <td style="text-align: center;"><div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div></td> <td style="text-align: center;"> <input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div> </td> <td style="text-align: center;"> <div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div> </td> </tr> </tbody> </table>	Enabled	Start Time (HH:MM)	Sunset Delay (Minutes)	End Time (HH:MM)	Sunrise Delay (Minutes)	Dimming (%)	Dimming Override	<input type="checkbox"/>	Sunset	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	9:30 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>	<input type="checkbox"/>	9:30 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	Sunrise	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>	<input type="checkbox"/>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>	<input type="checkbox"/>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>	<input type="checkbox"/>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>
Enabled	Start Time (HH:MM)	Sunset Delay (Minutes)	End Time (HH:MM)	Sunrise Delay (Minutes)	Dimming (%)	Dimming Override																																						
<input type="checkbox"/>	Sunset	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	9:30 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>																																						
<input type="checkbox"/>	9:30 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	Sunrise	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>																																						
<input type="checkbox"/>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>																																						
<input type="checkbox"/>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>																																						
<input type="checkbox"/>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	12:00 pm	<div style="border: 1px solid #ccc; width: 40px; text-align: center;">0</div>	<input checked="" type="radio"/> ON <input type="radio"/> OFF <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <div style="position: relative; height: 10px; background: linear-gradient(to right, #ccc, #ccc); width: 100%;"></div> <div style="position: absolute; left: 0; top: -5px;">0</div> <div style="position: absolute; right: 0; top: -5px;">100</div> </div> </div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Normal</div> <div style="border: 1px solid #ccc; width: 20px; height: 20px; text-align: center; line-height: 20px;">v</div>																																						

Inventory Management

GPS in each controller helps create/verify streetlight inventory and speeds installation rollout.



Asset Management

Flexible User-Definable Asset Classes

Attribute details of SLC - Pole 35 - 2 Heads

Energy

Utility Company

Utility Meter Information

Account Number

Eversource

S72267619

56239137094

Fixture

Mfgr

Model Number

Lamp Type

Wattage

Fixture_Voltage

Fixture Orientation

Fixture Color

Style

Cooper

COOPER GLEON-AE-0

LED FIXTURE

157

480

Type 4 Wide Distribution

Bronze

Shoebox

Mounting

Mounting Style

Slipfitter Model Number

Tenon Reducer Model Number

Slipfitter

COOPER MA1036-BZ

n/a

Pole

Pole Type

Pole Size

Color

Pole Shape

Square Pole Dimensions

Round Tapered Dimensions - Top

RoundTapered Dimensions-Bottom

Model Number

Base Cover

Steel

27

Bronze

Round Tapered

Other

2 3_8

21

Site Location Information

Circuit Number

Pole Number

Panel Location

Other

35

Common Area behind P

Sono Tube

Base Detail

Size

Bolt Size

Bolt Pattern

Round

24

1

12

Save

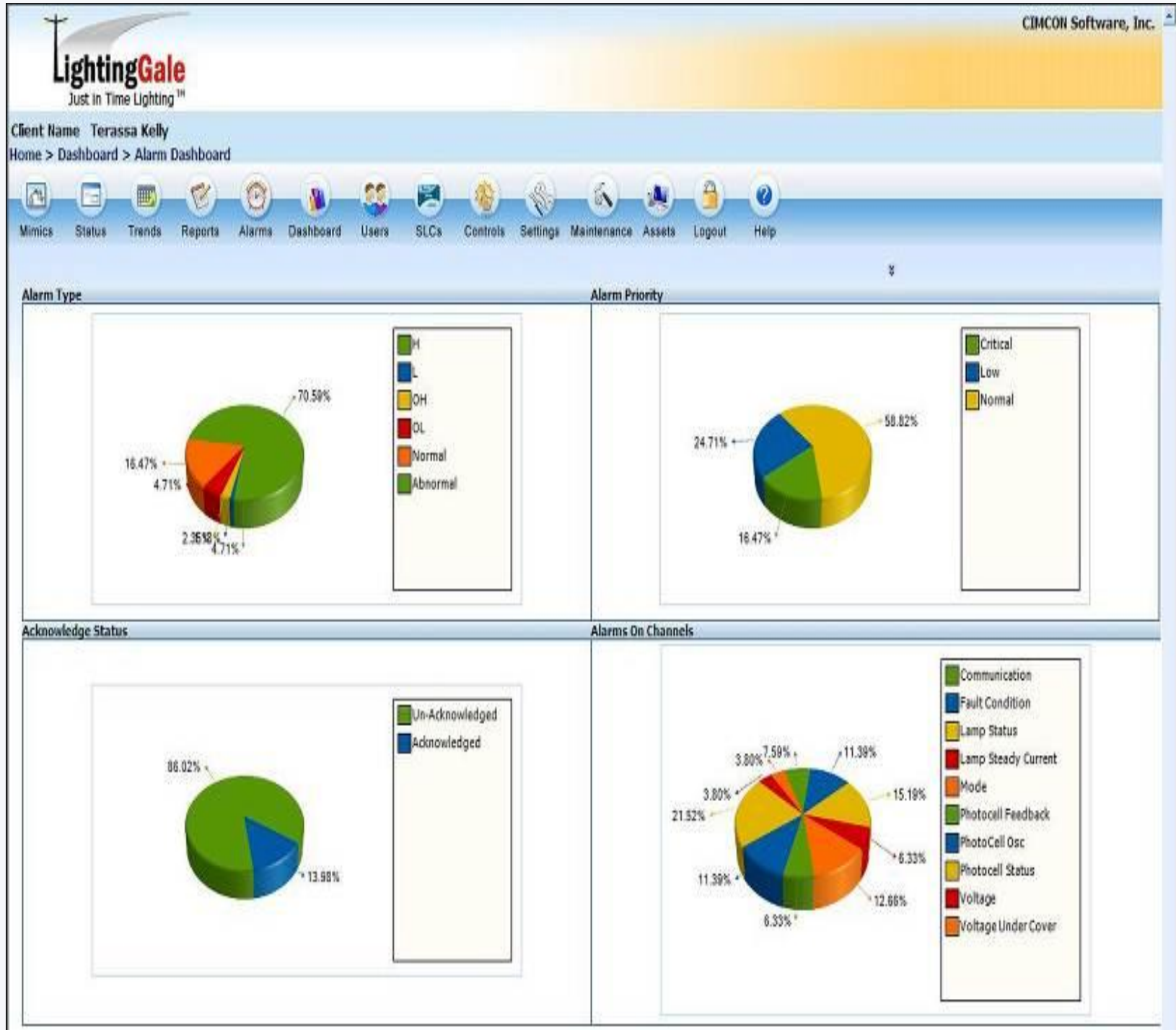
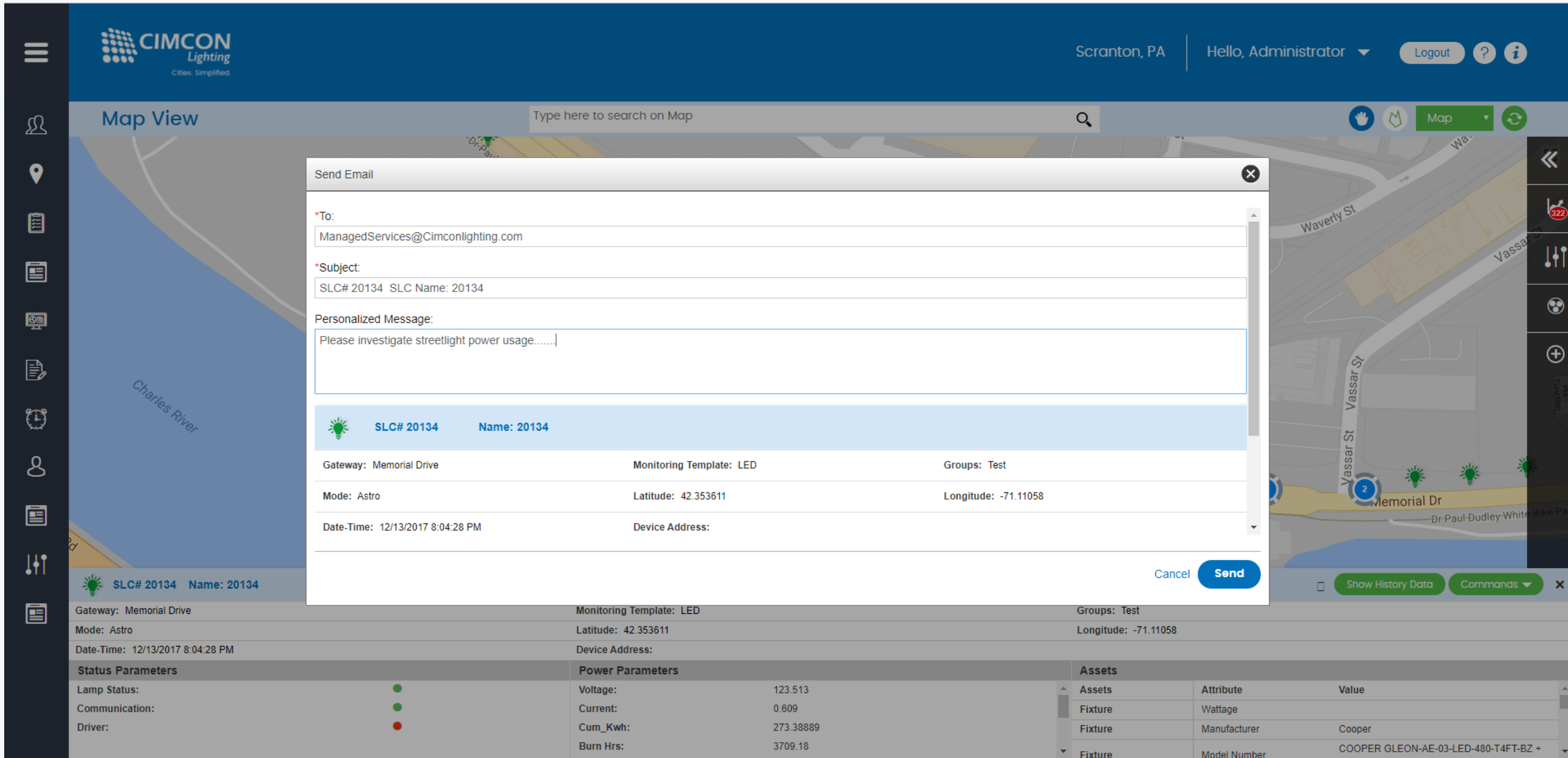
Cancel

Apply To

*Other Classes and Attributes per user preferences.
(Ex: Pole Attachment Type)*

Real Time Alerts and Alarms

Text, email, and reports



Work Order Management

Tickets, assignments, reporting, audit logs

Reported Issue

LightingGale :: Just in Time Lighting

AssignedUnassigned

SearchBy: SLC Name Raised Between: 2/23/2018 31 and 2/23/2018 31 Include Discarded Issues Search Print

AddGenerate Work OrderDiscard

	SLC Name	Address	Issue Type	Raised On	Raised By	Fault Name	Fault Description	Discarded
<input type="checkbox"/>	Pole 10	3A Calle, Guatemala	Utility	02/23/2018 08:45:56	admin	Others	LED Bar failure. May need to replace fixture	✖
<input type="checkbox"/>	Pole 6	3A Calle, Guatemala	Utility	02/23/2018 08:44:49	admin	Others	Faulty Driver. Need to replace	✖

Page Size: 20

Assignment

LightingGale :: Just in Time Lighting

AssignedUnassigned

Work Order Status: All Work Order: All Assigned Date: 2/23/2018 31 Search Print

Work Order List

	Work Order Name	Assigned Date	Work Order Status	Work Order Description	Assigned To	Add Action	Reassign/Re-open Work Order	Delete
<input type="checkbox"/>	WO-2-23-2018-84751760	02/23/2018 08:48:25	Open	Need to inspect feeder panel at pole as well as wi	cimcon			

Page Size

Issue List

	SLC Name	Raised On	Raised By	Issue Status	Fault Name	Fault Desc	Add Action	View Attributes	Maintenance
<input type="checkbox"/>	2_14_W_New	01/15/2018 13:58:52	admin	Open	Communication Fault	SLC has not communicated since it was installed. Need to inspect the pole & fixtures power supply			

LightingGale :: Just in Time Lighting

Work Order Name:* WO-2-23-2018-8461727

Description: Inspect LED fixture and confirm LED Bar failure. If in fact faulty, replace bar or replace entire fixture.

Select User:* Select User

Select User

dmuckey

jtuttolomondo

Technician Action

LightingGale :: Just in Time Lighting

Status: WIP

Action:* Inspected pole 2_14, definitely receiving excessive voltage. Verified all other poles on circuit 2 and all are receiving excess voltage. Need to follow up with circuit power supply to determine root cause.

SLC Name	Issue Type	Raised On	Fault Name	Issue Status	Work Order Name
2_14_E_New	Utility	02/23/2018 09:02:37 AM	Voltage Fault	Open	WO-2-23-2018-9244916

LightingGale :: Just in Time Lighting

AssignedUnassigned

Work Order Status: All Work Order: All Assigned Date: 2/23/2018 31 Search Print

Work Order List

	Work Order Name	Assigned Date	Work Order Status	Work Order Description	Assigned To	Add Action	Reassign/Re-open Work Order	Delete
<input type="checkbox"/>	WO-2-23-2018-9244916	02/23/2018 09:03:15	WIP	Please inspect circuit and feeder panel for pole 2	cimcon			
<input type="checkbox"/>	WO-2-23-2018-84751760	02/23/2018 08:48:25	Closed	Need to inspect feeder panel at pole as well as wi	cimcon			

Page Size

Issue List

	SLC Name	Raised On	Raised By	Issue Status	Fault Name	Fault Desc	Add Action	View Attributes	Maintenance
<input type="checkbox"/>						Fixture receiving excessive power.			

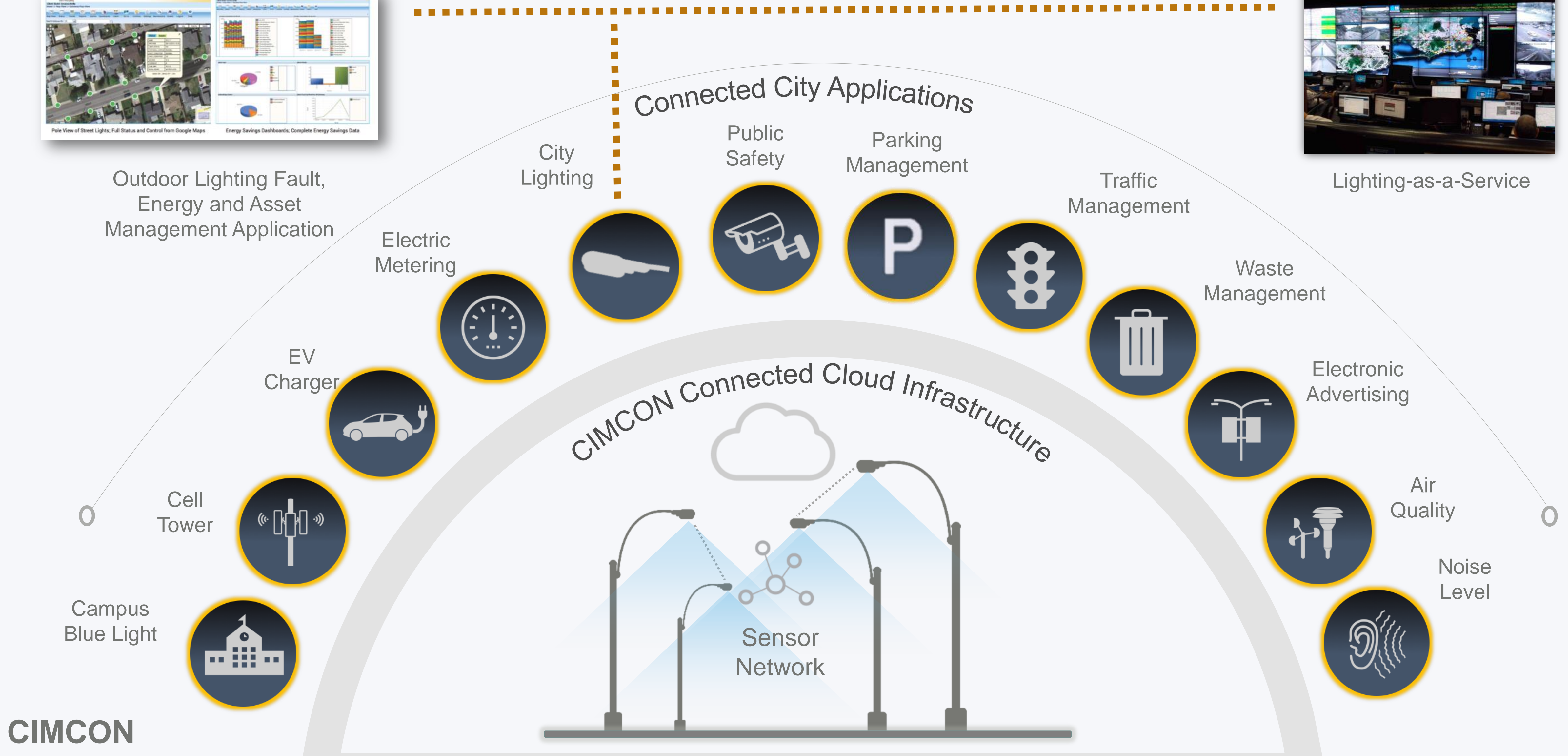
Street Lighting as a Sensor Platform

0

0

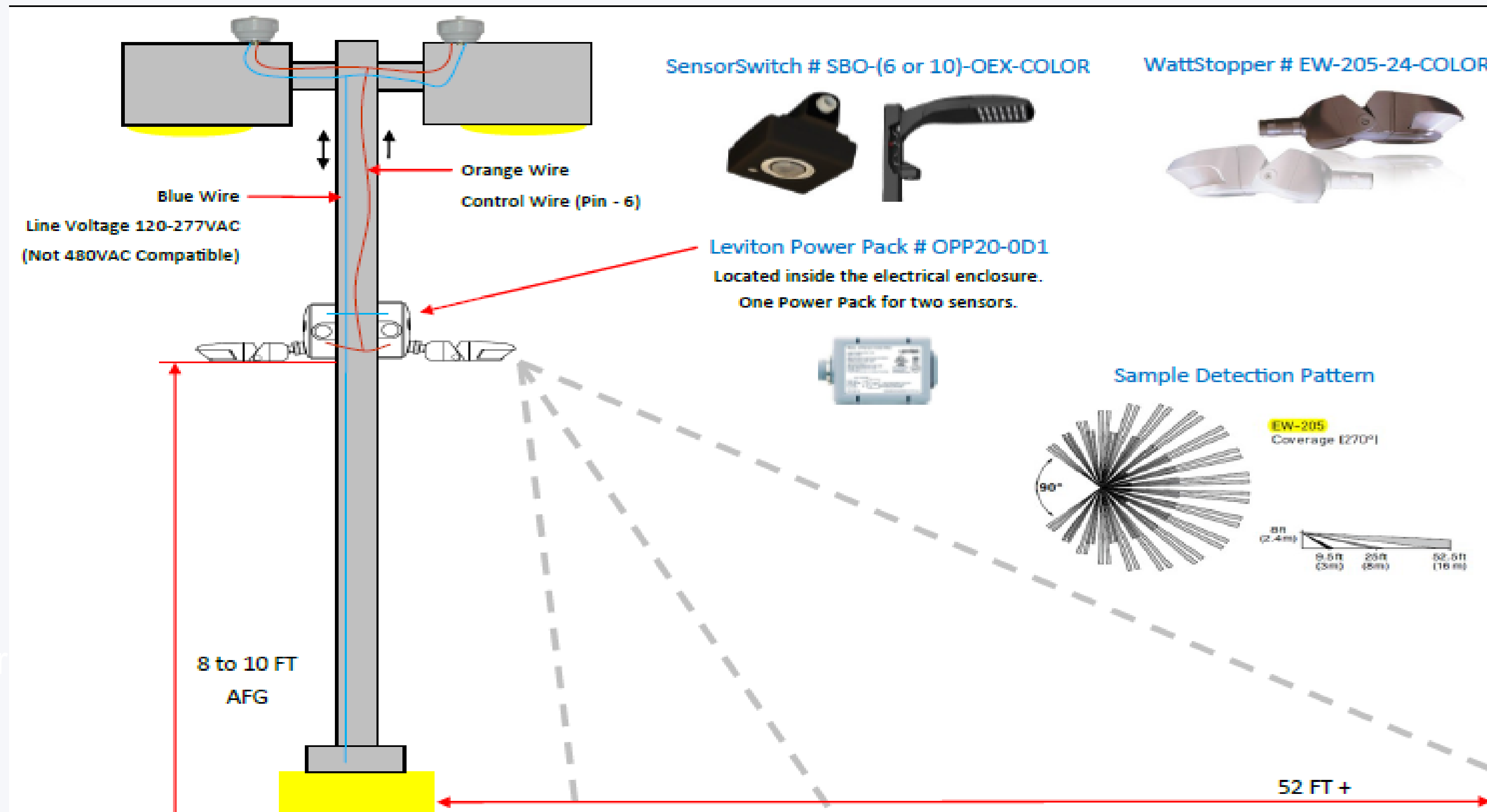
Smart Lighting – Features and Product On the Horizon

24



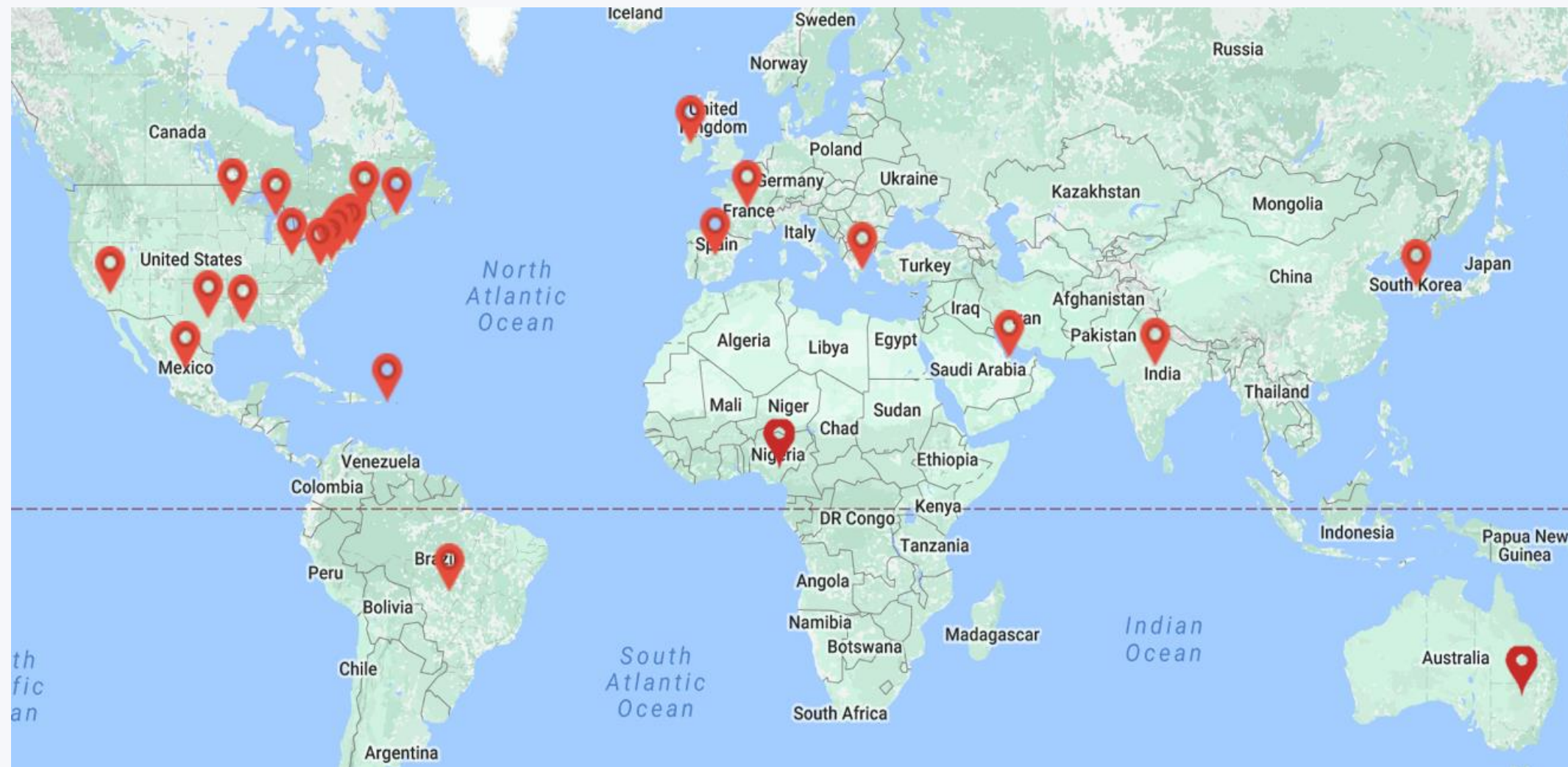
SENSOR INTEGRATION EXAMPLE – MOTION (THROUGH PINS 6 &

7)



ConnectWorks and CIMCOM Customers

~400,000 controllers*, 50+ cities, 16 countries



CITIES



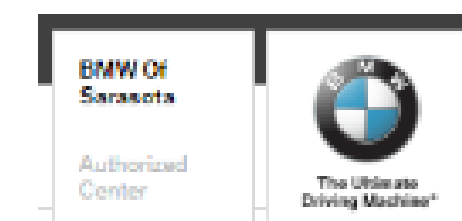
HALIFAX



UTILITIES



COMMERCIAL



*includes installed and to be installed controllers

CIMCON confidential

Connect Ahead Pilot Program by Eaton Connectworks

ConnectWorks
Connected Lighting pilot program

TRY it
BEFORE
you buy it
program

Connect Ahead program

- 1 Select ConnectWorks equipment and LED fixtures
- 2 Enter a Connect Ahead order with promo code provided
- 3 Install and experience the benefits of connected lighting

Connect Ahead pilot program

TRY it...before you buy it!

Test the performance of Eaton's Streetworks LED products and ConnectWorks connected lighting system powered by CIMCON before you pay for them with this 180-day pilot program.

Simple steps to Get Connected

1 Choose LED fixtures, equipment and services

Choose up to twelve approved fixtures, up to twelve wireless lighting controllers, one wireless gateway, and startup services. If you would like to install Streetworks fixtures for this program, specify dimming and 7-PIN photocontrol receptacle on up to 12 fixtures from the following product families, up to \$5,000. For full catalog logic, refer to product spec sheets. For 347V or 480V applications, contact your lighting representative for more details. If you want to retrofit previously installed LED fixtures with ANSI C136.41 compliant 5-PIN or 7-PIN photocontrol receptacles, no additional fixtures are required.

Streetworks LED fixtures

Roadway

- Archeon (ARCH)
- Verdeon (VERD)
- Verdeon-M (VERD-M)
- Navion (NVN)
- OVH/OVF



Area

- Galleon (GAN / GAP)
- USSL
- Caretaker (CRTK)



ConnectWorks system

The ConnectWorks system combines the use of a wireless gateway, wireless lighting controllers, and software services to provide a connected lighting system.

Wireless Gateway

- One per demonstration program
- Catalog: WG-U-VZ



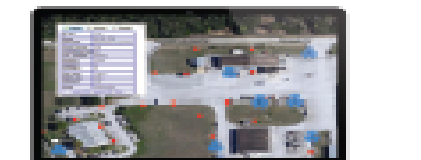
Wireless Lighting Controller

- Up to 12 (one per LED fixture)
- Catalog: ISLC-3100-7P-U-A-G-IO-CATB-2



Software as a Service

- One per wireless lighting controller
- Catalog: SAAS-0001



Services

Startup services include: remote configuration of the nodes and cloud-hosted software, activation of cellular service for the gateway, and a 60-minute user training of system functionality.

Startup and Training

- Catalog: FACTORY STARTUP-CW (one per demonstration program)

2 Enter order with promo code

Enter order with selections made from above with your local lighting representative.

Order must be marked **"Connect Ahead"** with promo code **"CA6"**.

3 Install and experience the benefits

Install the fixtures and ConnectWorks system.

Contact the Lighting Services team at LCServices@eaton.com with the subject 'Connect Ahead Configuration' to schedule a remote training session and remote configuration for controller and gateway.

Eaton will allow up to 180-days net payment terms from invoice date, or you can return the fixtures, controllers, and gateways (freight prepaid) within 180-days for a credit to the invoice.

Thank You

0

0

TELECELL: UNIVERSAL STREETLIGHT CONTROLLER

OVERVIEW

Telensa's telecell is the world's most deployed wireless streetlight controller, with a footprint of more than 1.5 million nodes and 7 years of continuous service. No larger than a regular photocell, telecell variants are available for every type of streetlight, including decorative fixtures.

Long range system – non-line-of-sight range up to 10 miles (16km)

Very low power consumption – up to 4x less than mesh networks

GPS plots lights in central management system and in asset management map system

Revenue grade meter system for time-of-use energy consumption



Full coverage – relay function means all lights and street furniture covered

Robust – operates normally and logs activity even when disconnected from the network

Resilient – automatically connects to best available base station, always covered by multiple base stations

NFC chip and smart device app for no-touch provisioning





		NEMA	Conduit	2-Part	Post Top	480 V Roadway
Regulatory	Standards available	FCC/ETSI	FCC/ETSI	FCC/ETSI	FCC/ETSI	FCC
	Country approvals	Contact Telensa for detail	Contact Telensa for detail	Contact Telensa for detail	Contact Telensa for detail	Contact Telensa for detail
	Manufacturing	ISO9001 and ISO14001	ISO9001 and ISO14001	ISO9001 and ISO14001	ISO9001 and ISO14001	ISO9001 and ISO14001
Radio	Protocol	UNB	UNB	UNB	UNB	UNB
	Supported bands	International 910-920MHz	International 910-920MHz	International 910-920MHz	International 910-920MHz	International 910-920MHz
		EU 868Mhz	EU 868Mhz	EU 868Mhz	EU 868Mhz	
	Receiver sensitivity (minimum)	-124dBm	-124dBm	-124dBm	-124dBm	-124dBm
	Transmit power (Maximum ERP)	25 mW ETSI / 100mW FCC	25 mW ETSI / 100mW FCC	25 mW ETSI / 100mW FCC	25 mW ETSI / 100mW FCC	100mW FCC
Environmental	IP rating	IP66	IP66	IP66	IP66	IP66
	IK rating	IK07	IK06	IK05	IK07	IK07
	Temperature (°C/ °F)	-40 to +70 / -40 to +158	-40 to +70 / -40 to +158	-40 to +70 / -40 to +158	-40 to +70 / -40 to +158	-40 to +70 / -40 to +158
Power	Voltage	110V – 277V	110V – 277V	110V – 277V	110V – 277V	480V
	Consumption	0.85W	0.85W	0.85W	0.85W	
	Switching	10A	10A	10A	10A	5.5A
	Dimming (on-board)	0 – 10v or DALI	0 – 10v or DALI	0 – 10v or DALI	0 – 10v or DALI	0 – 10v or DALI
	Surge protection	320VAC 10kA device	320VAC 10kA device	320VAC 10kA device	320VAC 10kA device	550VAC 22kA device
Metering	Accuracy	Revenue grade	Revenue grade	Revenue grade	Revenue grade	Revenue grade
	Meter pulse IR LED	Available	Available	Not Available	Available	
Processing	Metrology engine	Separate 32bit Arm processor	Separate 32bit Arm processor	Separate 32bit Arm processor	Separate 32bit Arm processor	Separate 32bit Arm processor
	Main application engine	Separate 32bit Arm processor	Separate 32bit Arm processor	Separate 32bit Arm processor	Separate 32bit Arm processor	Separate 32bit Arm processor
Physical	Connections	5/7 PIN (ANSI C136.41)	5 wire (dimming)	5 wire (dimming)	5/7 PIN (ANSI C136.41)	5/7 PIN (ANSI C136.41)
		3 PIN (ANSI C136.10)	3 wire (on/off only)	3 wire (on/off only)	3 PIN (ANSI C136.10)	3 PIN (ANSI C136.10)
	Dimensions (H x D)	58.6x 86.6mm [2.31 x 3.41"]	58.6x 86.6mm [2.31 x 3.41"]	34 x 89mm [1.34 x 3.5"]	58.6x 86.6mm [2.31 x 3.41"]	113.5x 87.9mm [4.47 x 3.46"]
	Antenna	Internal	Internal	External* (purchased seperately)	External* (purchased seperately)	Internal
GPS	Receiver type	167 channels	167 channels	167 channels	167 channels	167 channels
		L1,C/A code	L1,C/A code	L1,C/A code	L1,C/A code	L1,C/A code
	Update rate	40Hz	40Hz	40Hz	40Hz	40Hz
	Acquisition timing	Hot start 1 second TTFF	Hot start 1 second TTFF	Hot start 1 second TTFF	Hot start 1 second TTFF	Hot start 1 second TTFF
		Cold start 29 seconds TTFF	Cold start 29 seconds TTFF	Cold start 29 seconds TTFF	Cold start 29 seconds TTFF	Cold start 29 seconds TTFF
	Assisted GP	Incl. 3.5 s TTFF / 7 day	Incl. 3.5 s TTFF / 7 day	Incl. 3.5 s TTFF / 7 day	Incl. 3.5 s TTFF / 7 day	Incl. 3.5 s TTFF / 7 day
NFC	Multipath	Supported	Supported	Supported	Supported	Supported
	Read range	15mm	15mm	15mm	15mm	15mm
	Frequency	13.56Mhz	13.56Mhz	13.56Mhz	13.56Mh	13.56Mhz

*External antenna options

Twig	Low profile	Easy-fit
		
H: 102mm [4.02"]	H: 104mm [4.09"]	H: 130mm [5.12"]

Disclaimer: This information is believed to be correct at the date of issue and is subject to change at any time.

HQ AND EMEA REGION

Telensa Limited, Iconix 3, London Road,
Pampisford, Cambridge, CB22 3EG, UK
Sales & General +44 (0)1799 588800
Support +44 (0)1799 399200
support@telensa.com

AMERICAS REGION

Telensa Inc., 1200 Abernathy Road, Building
600, 17th Floor Atlanta, GA, 30328, USA
Sales +1 770 551 8156
Support +1 855 399 7900
support@telensa.com

ASIA PACIFIC REGION

Telensa Systems Pty Ltd., Level 17,
383 Kent Street, Sydney, NSW 2000, Australia
Sales +61 451 336 135
Support support@telensa.com

ULTRA NARROW BAND (UNB) SMART CITY NETWORK

BASE STATION

Telensa Ultra-Narrow Band (UNB) base stations provide dedicated wireless connectivity for controlling large populations of things across cities and wider areas. Deployed in a matter of days, the network is designed to run for decades at minimal operational cost.

Long range system – up to 10 miles (16 km) range (non-line-of-sight)

High device capacity – each base station can connect up to 5,000 devices

No cell site costs – simple light pole installation can cover a city in a few days

Full coverage – coverage with large overlaps and relay mode means complete coverage

Robust backhaul – multiple cellular and Ethernet modules

Resilient coverage – devices are covered by multiple base stations

Flexible coverage – owner retains control

Low data costs – a fraction of cellular or mesh

Simple deployment – up to 20x fewer UNB base stations required than mesh system gateways

Long life – Industrial, Scientific and Medical (ISM) radio bands have proven longevity

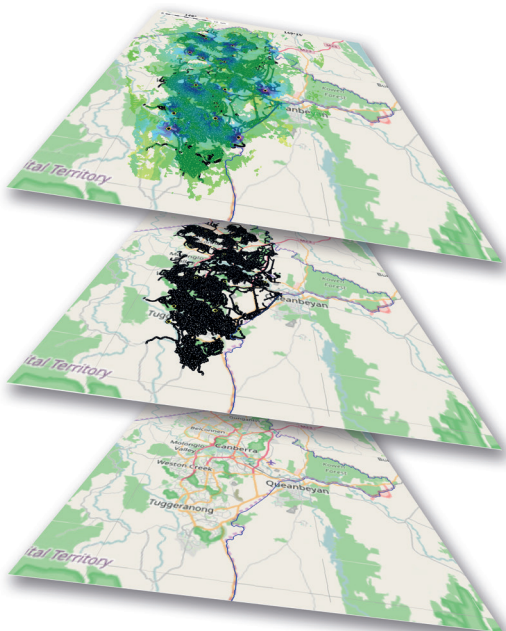
Modular hardware – can be upgraded during product life



PLANNING SYSTEM

Telensa's sophisticated planning system designs the network before the first truck rolls, allowing customers to see coverage before rollout and making the deployment simple and rapid for installation teams. Extending coverage or capacity is a simple re-plan function.

- The system combines detailed map topography with streetlight asset data
- If no accurate asset data is available, the system can synthesize lights on the map
- Planning system identifies optimal light poles for installing base stations, enabling the city to choose the precise deployment locations
- The coverage map enables the city to decide the right balance between cost and coverage
- Relay mode provides service into areas without base station coverage





Base station

Regulatory	Standards available	FCC/ETSI/international ISM standards
	Country approvals	Contact Telensa for detail
Radio	Protocol	UNB
	Supported bands	US: 910-920MHz EU: 868-869.65MHz
	Receiver sensitivity (minimum)	-135dBm
Environmental	Transmit power (maximum ERP)	US: 2W ERP, EU: 500mW EIRP
	Rating	IP66
	Fit for purpose testing (°C /°F)	-25 to +60 / -13 to +140
	Temperature (°C /°F)	-20 to +60 / -4 to +140
Power	Voltage	110V – 277V nominal 50/60Hz (single phase A.C)
	Consumption	20W
	Surge protection	20kA max (US) 6kA max (EU)
Capacity	Max number of supported telecells	5000
Core	Processing	Dual - low power high speed
Physical	Connections	Ethernet, power in
	Dimensions (WxDxH)	112 x 65 x 137mm / 4.4 x 2.6 x 5.4"
	UNB antenna	Length 1280mm / 50.4" Glass fibre shroud
	Weight	8.2kg/18lb
	Mounting	Direct pole mount or sign strapping options
GPS	Receiver type	Garmin 12 parallel channel (12 satellites)
	Update rate	5 records per second
	Acquisition timing	Warm 15 seconds Cold 45 seconds - SkySearch 5 minutes
	Reacquisition timing	Less than 2 seconds
	Accuracy	<3 metres 95% typical
	Sensitivity	-165dBW
Connectivity	Backhaul	2x4G/3G + Ethernet
	Frequency	ETSI/FCC
Environmental protection	Solar shield	Sides and top integral, front as option
	Marine resistance	Salt fog EN60950-22
	Wind loading	Tested up to 150mph
Time monitoring		GPS (primary)
		NTP (secondary)



Disclaimer: This information is believed to be correct at the date of issue and is subject to change at any time.

HQ AND EMEA REGION

Telensa Limited, Iconix 3, London Road,
Pampisford, Cambridge, CB22 3EG, UK
Sales & General +44 (0)1799 588800
Support +44 (0)1799 399200
support@telensa.com

AMERICAS REGION

Telensa Inc., 1200 Abernathy Road, Building
600, 17th Floor Atlanta, GA, 30328, USA
Sales +1 770 551 8156
Support +1 855 399 7900
support@telensa.com

ASIA PACIFIC REGION

Telensa Systems Pty Ltd., Level 17,
383 Kent Street, Sydney, NSW 2000, Australia
Sales +61 451 336 135
Support support@telensa.com

PLANet® CMS APPLICATION FOR SMART STREET LIGHTING

Telensa PLANet is the only Central Management System (CMS) for outdoor lighting with multiple large deployments, each controlling hundreds of thousands of lights. PLANet combines the sophistication, scale and flexibility to manage city, region or utility lighting populations.

ADVANCED MAPPING INTERFACE

unique ability to view large deployments on one screen. Includes geo-fencing, colour-coding, filtering and tagging functions. Google Maps enterprise mapping system with satellite and streetview.

SOPHISTICATED DIMMING AND SWITCHING

programs for any combination of lights or groups of lights:

Timed – at x-minute intervals

Sensor – algorithm-moderated sensor dimming e.g. from traffic sensors

System – algorithm-moderated dimming using data from other systems.

FLEXIBLE HOSTING OPTIONS

Customer, Telensa, or 3rd party.

INTEGRATION with leading Asset Management Systems (AMS) for automation of fault reporting and work orders. Including:

- Pitney Bowes Confirm
- Yotta Mayrise
- Symology.

ENERGY MANAGEMENT

Revenue grade energy consumption analysis and energy billing system integration.

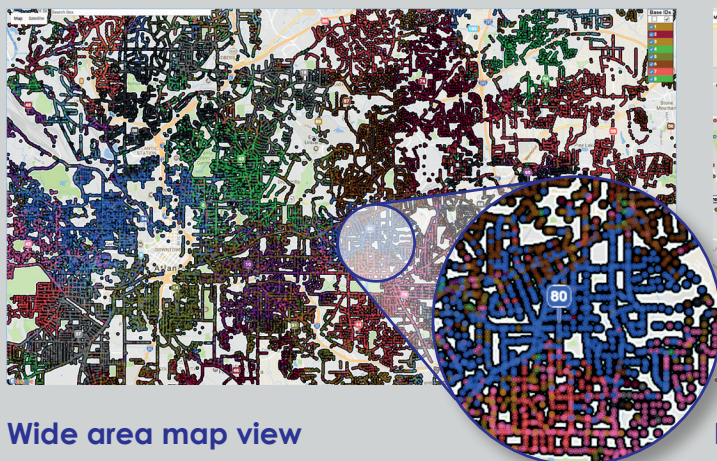
SOPHISTICATED FAULT DIAGNOSIS

using advanced modelling techniques. Saves money by improving first-time-fix rate.

MULTI-DISTRICT OPERATION

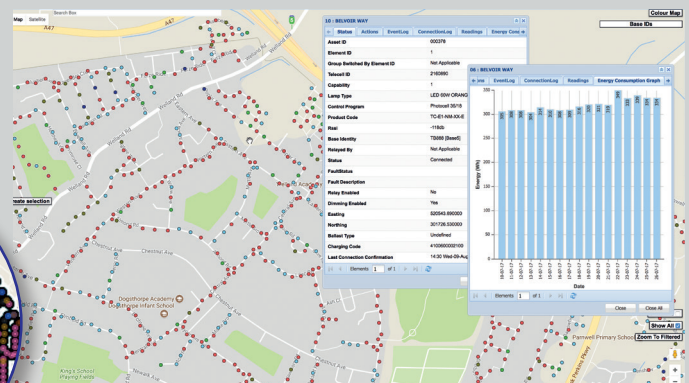
A single area system can be shared and operated by different district municipalities.

WEB INTERFACE for remote access with multiple devices.



Wide area map view

- 100,000+ lights displayed on a single screen
- Colour coding, for example by base stations



Detailed mapping and satellite view

- Sophisticated status reporting and programming
- Revenue-grade energy reporting

STREET LIGHT CONTROL

PLANet's sophisticated control programs work with any combination of lights in the city. Programs can be based on a variety of parameters, including timing, solar and sensor inputs. Lighting managers retain complete control to override programs in response to events.

Switching methods:

- by time e.g. 5pm
- by solar calendar e.g. 10 mins after sunrise
- by light level e.g. 10 Lux
- any combination of these

Standard control programs:

- photocell
- part night on/off
- part night dim
- fixed times

Constant light output

- lumen depreciation
- maintenance factor

Custom control programs:

- up to 10 switching steps

Days of week control:

- e.g. different switching at weekends

Calendar control:

- special events
- seasonal adjustments

Dimming control:

- dim to any level 0-100%
- scheduled dimming
- sensor-based dimming
- 3rd party system-based dimming

Trimming:

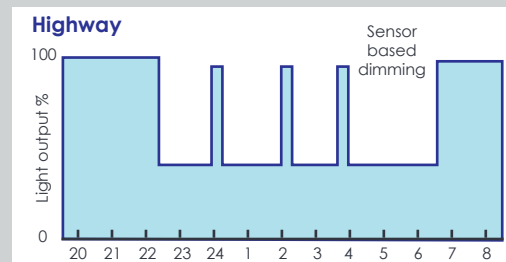
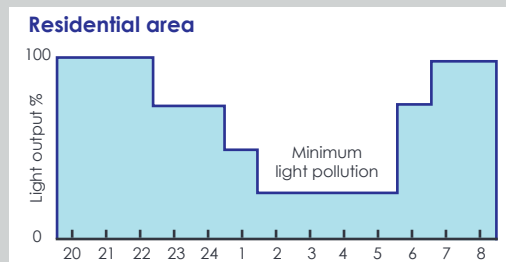
- optimised/auto trim burning hours

Override:

- quick switching changes across groups/whole population
- in response to sensor or system inputs
- respond to incidents
- special events
- use for maintenance

Load reduction

- enables demand-side balancing



STREETLIGHT MONITORING AND FAULT DETECTION

PLANet takes regular and detailed measurements from every light, and displays this information in an intuitive map-based interface. Threshold parameters can be set to trigger alerts, and lighting managers can interrogate individual lights at any time.

Lamp condition:

- failure
- cycling
- day burning

Telecell unit:

- missing data (from loss of supply or communications)

Times:

- switching times
- burn hours
- event log

Energy:

- active energy
- cumulative energy

Electrical:

- instant power
- instant current
- instant power factor
- average power
- average current
- average power factor

Mains supply:

- instant voltage
- average voltage
- low voltage
- power cycles

Advanced anomaly detection:

- abnormal energy loads
- fault trends

STREETLIGHT MAINTENANCE

PLANet eliminates the need for regular night inspections because lights report their own faults. Diagnostic information improves first time fix rates and Asset Management System (AMS) integration streamlines inventory and work order generation.

Reducing night maintenance inspections:

- avoids patrolling in dangerous areas
- inspections can be less frequent and carried out during the day

Fault diagnosis:

- lamps: failure, cycling, day burning
- ballasts: power factor
- mains supply: power cuts, over voltage
- lost connection: internal wiring, column down

Reducing repair times:

- avoids time wasted between night inspections
- understanding lamp failures enables repair to be scheduled more quickly

Improving inventory:

- monitoring reveals potential discrepancies in inventory

Extending range of information available:

- mains supply profile
- maintenance operatives' performance

Bulk lamp change policies:

- prompt lamp failure detection means bulk change period can be extended, while maintaining overall outages levels within targets

Disclaimer: This information is believed to be correct at the date of issue and is subject to change at any time.

HQ AND EMEA REGION

Telensa Limited, Iconix 3, London Road, Pampisford, Cambridge, CB22 3EG, UK
Sales & General +44 (0)1799 588800
Support +44 (0)1799 399200
support@telensa.com

AMERICAS REGION

Telensa Inc., 1200 Abernathy Road, Building 600, 17th Floor Atlanta, GA, 30328, USA
Sales +1 770 551 8156
Support +1 855 399 7900
support@telensa.com

ASIA PACIFIC REGION

Telensa Systems Pty Ltd., Level 17, 383 Kent Street, Sydney, NSW 2000, Australia
Sales +61 451 336 135
Support support@telensa.com